October 30, 2009

Mr. Gary Miller, Remedial Project Manager
U.S. EPA, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: *Draft Baseline Human Health Risk Assessment (BHHRA)*, dated August 31, 2009 - Comments
Gulfco Marine Maintenance Federal Superfund Site
Freeport, Brazoria County, TX

Dear Mr. Miller:

The Texas Commission on Environmental Quality (TCEQ), Remediation Division and Toxicology Division (TD), have completed review of the *Draft Baseline Human Health Risk Assessment (BHHRA)*, dated August 31, 2009. The draft BHHRA was prepared by Pastor, Behling, & Wheeler, LLC of Round Rock, Texas on behalf of LDL Coastal Limited LP, Chromalloy American Corporation, and Dow Chemical Company, collectively referred to as the Gulfco Restoration Group. TCEQ reviewed the BHHRA to ensure compliance with the Texas Risk Reduction Program (TRRP) rule and applicable TRRP guidance. When the TD reviews human health risk assessments for federal Superfund sites under TRRP, sometimes differences exist between the U.S Environmental Protection Agency (U.S.EPA) and TCEQ conclusions regarding the chemicals in an environmental medium which should be addressed by remedial action. One potential difference is the receptors/exposure parameters evaluated by U.S.EPA versus those evaluated by TCEQ under TRRP (e.g., trespasser versus TRRP commercial/industrial worker). Another potential difference is the conclusion drawn by U.S.EPA and TCEQ regarding which chemicals/media need to be addressed (e.g., differences in target risk/hazard levels and surface soil definitions). While there may be numerous differences between TRRP and the Risk Assessment Guidance for Superfund (RAGS), TCEQ limited comments to those instances where such differences had a

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significant effect on the implementation or conclusions of the BHHRA or were important for the determination of human health protection as evaluated under TRRP. TCEQ comments are provided below under section numbers and titles which correspond to those contained in the BHHRA.

2.2 Identification of Potential Chemicals of Concern

This section of the BHHRA refers to a screening process which is not consistent with '350.71(k) of TRRP. Additionally, the first paragraph appears to contain a misstatement where it indicates that compounds were eliminated from further consideration if…4) they were detected at a high concentration. In this particular case, the description of the screening process, which considered TCEQ human health criteria and data summary tables, suggests that chemicals likely to contribute significantly to risk/hazard for the receptors evaluated were included in the BHHRA.

3.2 Potentially Exposed Populations

This section indicates that youth trespassers, in addition to future commercial/industrial and construction workers, were evaluated for the site. As trespassers are not evaluated under TRRP and commercial/industrial workers have greater exposure and risk/hazard, TD did not evaluate the BHHRA results for the trespasser.

Although off-site dust and VOC emissions were evaluated for the South area, they were not evaluated for the North area. TRRP '350.71 requires the evaluation of vapor and particulate from surface soil, and vapor from subsurface soil. TD does not believe that abundant vegetation on the upland portion of the North area, for example, is a competent existing physical control for preventing emissions to ambient air.

3.4.3 Exposure Assumptions and Intake Calculations

This section of the BHHRA indicates that TCEQ residential soil-to-air PCLs (30-acre) were used to evaluate off-site residential exposure to vapor and particulate from the South area. However, the actual PCLs used in Tables 23 and 24 for this evaluation ($^{Air}Soil_{Inh\text{-}V}$ PCLs) only consider vapor, and do not include contributions from particulate. TRRP $^{Air}Soil_{Inh\text{-}\boldsymbol{VP}}$ PCLs apply to commercial/industrial surface soil [0-5 feet below ground surface (bgs)], while $^{Air}Soil_{Inh\text{-}V}$ PCLs apply to subsurface soils. There are more $^{Air}Soil_{Inh\text{-}VP}$ PCLs than $^{Air}Soil_{Inh\text{-}V}$ PCLs (e.g., metals), and residential $^{Air}Soil_{Inh\text{-}VP}$ PCLs are available in Table 6 at www.tceq.state.tx.us/remediation/ trrp/trrppcls.html.

3.4.4 Vapor Intrusion Pathway for Future On-Site Worker Scenarios

Although this section indicates that vapor intrusion from groundwater was evaluated, TD did not review the methodology in detail considering TCEQ does not currently have any final guidance on this potential exposure pathway and that a restrictive covenant requiring any building design to preclude vapor intrusion has been filed for lots (55, 56,

57) where VOCs have been measured in relatively high concentrations in zone A groundwater.

5.1 and 5.2 Potential Carcinogenic Risks and Noncarcinogenic Hazard Quotients

Section 5.1 indicates that U.S.EPA has established an acceptable excess risk range of 1.0E-06 to1.0E-04, and Section 5.2 indicates that a hazard index (HI) of less than 1 indicates no adverse noncarcinogenic effects are expected. Under TRRP, chemicals representing a risk greater than the individual-chemical target risk of 1.0E-05 (based on the appropriate receptor considering the land use classification under TRRP (see '350.53)) warrant a response. In regards to noncarcinogenic effects, chemicals representing a hazard quotient (HQ) greater than the TRRP individual-chemical target hazard of 1.0 (based on the appropriate receptor considering the land use classification under TRRP) warrant a response. The TRRP target cumulative excess lifetime cancer risk level is 1.0E-04 per medium, and target HI is 10 per medium. Under TRRP, the HI is not segregated by critical effect/target organ as may be done by U.S.EPA.

Per Sections 5.1 and 5.2, risk exceeded 1.0E-04 and the HI exceeded 1 due to vapor intrusion for the commercial/industrial worker in a future building sited in the North area. TD review of Table 26 indicates that TRRP individual-chemical target risk and hazard levels were significantly exceeded by multiple chemicals, and the TRRP cumulative risk and hazard levels were significantly exceeded as well. This unacceptable potential future risk/hazard may be mitigated if sufficiently addressed by the restrictive covenant for lots (55, 56, 57) requiring any building design to preclude vapor intrusion.

Tables 1, 2, 8, 9

In regard to Arochlor 1254 in these tables, please note that TCEQ has a commercial/industrial $^{Total}Soil_{Comb}$ PCL (30-acre) for PCBs of 7.1 mg/kg.

Tables 1 and 8 refer to surface soil in the South and North areas as 0-0.5 feet bgs, while Tables 2 and 9 refer to South and North area soil as 0-4 feet bgs. Under TRRP, the definition of surface soil for commercial/industrial workers is from 0-5 feet bgs. Workers are assumed to have direct contact (i.e., incidental ingestion, dermal contact, inhalation of vapors/particulate) with soil in the 0-5 feet bgs interval, which should be evaluated with $^{Total}Soil_{Comb}$ PCLs. Comparisons between soil results in the 0-4 feet bgs interval (e.g., maximum detections) in the North area in Table 9 and the cited commercial/industrial $^{Total}Soil_{Comb}$ PCLs (30-acre) does not reveal any exceedances.

Comparisons between 0-4 feet bgs interval 95%UCL interval soil results in the South area in Table 2 and the cited commercial/industrial $^{Total}Soil_{Comb}$ PCLs (30-acre) does not reveal any exceedances, although the maximum concentration of benzo(a)pyrene exceeds its $^{Total}Soil_{Comb}$ PCL by two-fold. Per '350.51(l)(4) of TRRP, the exposure area for a commercial/industrial worker should be assumed to be 2 acre, but 95% UCLs in the BHHRA were likely calculated over larger areas (see Plate 1 Investigation Sample

Locations aerial). Exposure area is not an issue if the maximum concentration is utilized for comparison, as TD did for the North area. However, given the magnitude of the PCL exceedance for the maximum concentration in the South area and the number of samples collected, use of a smaller exposure area for 95% UCL calculations may not appreciably affect BHHRA conclusions regarding benzo(a)pyrene.

Tables 4, 11, and 12

These tables evaluate or screen surface water results only from a recreational receptor perspective. TD deferred to other TCEQ staff the determination as to whether the Texas Surface Water Quality Standards (TSWQS; 30 TAC '307.1-307.10) apply to various water bodies (e.g., intracoastal waterway, wetland surface water), and if so, what particular values apply (e.g., sustainable fishery) and should be used for evaluation of analytical results. The Remediation Division indicated:

> Intracoastal Waterway (ICWW) - The ICWW is tidal and so by definition is a sustainable fishery (§307.6(d)(5)(D)). The TSWQS salt water fish criteria apply.
>
> Wetlands - The information provided by the TCEQ project manager indicates that these are salt water wetlands. Per Table 3-1 of TRRP-24 guidance, salt water wetlands (both permanently inundated and not) need to meet the TSWQS salt water fish criteria.
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> Two freshwater ponds – Based on the available to the TCEQ information, both of these ponds are perennial. Both appear to be less than 50 surface acres, and therefore would not be sustainable fisheries by definition (§307.6(d)(5)(C)). However, since they are perennial, they should be evaluated as incidental fisheries (§307.6(d)(6)), and the TSWQS freshwater fish tissue values multiplied by 10 will apply.

The human health SW RBELs published by TCEQ (which incorporate the above-referenced values) are available at http://www.tceq.state.tx.us/assets/public/remediation/trrp/ swrbelstable.pdf.

If you have any questions please, contact me at (512) 239-6368 or Kip Haney at (512) - 239-5691.

Sincerely,

Ludmila Voskov, P.G., Project Manager
Superfund Section
Remediation Division
Texas Commission on Environmental Quality

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